REMARKS

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

I. CLAIM STATUS & AMENDMENTS

Claims 1-3 and 5-9 were pending in this application when last examined, and stand rejected.

To further clarify the claimed invention, the term "intercalator" has been deleted from claim 1 and a new dependent claim 10 directed to an intercalator has been added. Such amendment clarifies the relationship between the energy absorbing substance and the intercalator. The amendment and new claim 10 are supported by the disclosure on page 6, lines 13-24 and original claim 1.

Also, in view of the amendment to claim 1, claim 5 has been amended to depend from new claim 10.

Therefore, no new matter has been added by this amendment.

Claims 1-3 and 5-10 are now pending in this application.

II. FOREIGN PRIORITY

As noted on page 4 of the response filed January 4, 2005, enclosed herewith is a certified copy of the foreign priority document, thereby perfecting the claim of priority. Thus, kindly acknowledge the foreign priority claim and receipt of the foreign priority document.

III. REJECTION UNDER 35 U.S.C. § 102

Claims 1-3 and 5-9 remain rejected under 35 U.S.C. § 102(b) as anticipated by Livak. See page 2 of the Advisory Action and item 1 on pages 2-7 of the final Office Action.

This rejection is respectfully traversed as applied to the amended claims for the following reasons.

The rejection appears to have been maintained on the basis that the previous response includes arguments to limitations not in the claims. In the continuation of item 5 on page 2 of the Advisory Action, it is indicated that the claims do not require that a quencher molecule binds to or intercalates to a double-stranded nucleic acid or that the fluorescence of the reporter molecule is thereby unquenched. The Examiner also contends that there is no requirement in the claims for the ordered sequential steps of hybridization, intercepting and quenching to occur.

It is respectfully submitted that the Office's characterization of the claimed invention is inaccurate. Claim 1, as amended in the response filed January 4, 2005, requires that the energy absorbing substance "interacts with the double-stranded nucleic acid due to the hybridization of the probe of the target nucleic acid thereby resulting in no quenching." Such language (especially, "due to") requires the sequential order of steps of hybridization, interacting and no quenching. In other words, with the present invention, an energy absorbing substance interacts with a double-stranded nucleic acid thereby resulting in no quenching when the probe is hybridized with a target nucleic acid. This claim language is consistent with the disclosure at page 8, lines 11-29.

Livak simply fails to disclose or suggest this element of the claimed invention. For this reason, Livak cannot be said to disclose or suggest each and every element of the claimed invention.

Also, as noted in the prior response, Livak's invention is structurally different in that it involves a conformational change not found in the present invention. The claim language of the instant application precludes the invention in Livak, because it does not involve such a conformational change. Based on Fig. 2 in Livak, (and as discussed in Col. 7, lines 10-25) the fluorescence of the reporter molecule is unquenched when a target molecule is hybridized to the probe and a hairpin structure of the probe is thereby straightened. In other words, when the probe of Livak is hybridized to the target sequence, the probe undergoes a conformational change whereby the quencher is no longer positioned close enough to the reporter molecule to quench the fluorescence. See column 7, lines 15-20. Thus, Fig. 2 clearly shows that Livak's patent involves a conformational change.

In contrast, the present invention is distinguishable from Livak in that it does not involve such conformational change. Instead, in the present invention, an energy-absorbing substance interacts with the double-stranded nucleic acid thereby resulting in no quenching when the probe is hybridized with a target molecule. This interaction causes the energy transfer from the labeling substance to the energy-absorbing substance to be intercepted which results in no quenching. Accordingly, it is the interaction and subsequent interception that cause no quenching, not a conformational change. Such is evident from the claim terminology requiring the sequential order of steps of hybridization, interacting and no quenching. Clearly, the present invention does not involved a conformational change.

In sum, the amended claimed invention is distinguishable from Livak, because Livak fails to disclose each and every element of the claimed invention, namely, the sequential steps of hybridization, intercepting and no quenching. Livak fails to disclose the requirement for interception to result in no quenching. Also, Livak's invention is structurally different in that it involves a conformational change, not present in the claimed invention.

In view of the above, the rejection of claims 1-3 and 5-9 under 35 U.S.C. § 102(b) is untenable and should be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is in condition for allowance and early notice to that effect is hereby requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned attorney at the telephone number below.

Respectfully submitted,

Akio YAMANE

By: Warren Cheek

Warren M. Cheek, Jr.
Registration No. 33,367
Attorney for Applicant

WMC/JFW/ksh
Washington, D.C. 20006-1021
Telephone: 202-721-8200
Facsimile: 202-721-8250
February 4, 2005

THE COMMISSIONER IS AUTHORIZED TO CHARGE ANY DEFICIENCY IN THE FEES FOR THIS PAPER TO DEPOSIT ACCOUNT NO. 23-0975